

NASA TECH BRIEF



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VICAR—Digital Image Processsing System

The problem:

To develop a system to correct various photometric, geometric, and frequency response distortions in pictures.

The solution:

A computer program for which a picture must be converted to a number of elements, with each element's optical density quantized to a numerical value. The translated picture is recorded on magnetic tape in digital form for subsequent processing or enhancement by computer.

How it's done:

The image processing system (Video Image Communication and Retrieval—VICAR) is designed to facilitate the acquisition, digital processing, and recording of image data. System objectives include ease of operation by personnel who may not be expert programmers as well as simplification of future programming effort. The system is intended for operation with the IBM 360/44 Programming System (44PS). It provides the necessary routines to complement 44PS and adapt it to meet the needs of image processing.

Operation of the VICAR system is very similar to that of a standard utility program. The programmer provides a card deck containing VICAR control statements which define the attributes of the job including the processing tasks. A system program, which may be considered either as a utility program or as a simple compiler, uses these control statements to generate

any required 44PS job control statements as well as a system task queue. This system task queue contains all of the data needed to execute the specified tasks.

Once the task queue is complete, control is returned to 44PS. Another system program is loaded and remains in main storage throughout the job. This program, in turn, loads a transient routine which reads the system task queue and initiates the first task. Upon task completion, the transient routine is reloaded and the next task is initiated. When the last task has been completed, control is returned to 44PS for job termination. Each task involves the execution of a program which must exist in the system program library.

Notes:

1. The program is written in FORTRAN IV and Assembler Language for use on the IBM 360 computer.
2. Inquiries concerning this program should be directed to:

COSMIC
Computer Center
University of Georgia
Athens, Georgia 30601
Reference: B69-10139

Patent status:

No patent action is contemplated by NASA.

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